6 Determinants of success in academic careers[1]

The competition for top positions in university rankings has put a stronger emphasis on the quality of university staff. Recruitment of excellent scholars is a core activity for university HRM. In this study, we compare the careers of pairs of similar researchers that were considered as very talented in their early careers. Of every pair, one has a continued academic career, whereas the other does not. We investigate to what extent success in academic career is determined by cultural, social and intellectual capital, and organisational and contextual factors.

6.1 Introduction

Higher education (HE) and research are increasingly global, as is indicated by the growing obsession with rankings (Deem et al., 2008; Labi, 2008; Mok & Chan, 2008). To reach the academic top, recruiting and keeping the best staff is crucial, as a critical mass of competent highly skilled people is decisive for excellence (Ivancheva & Gourova, 2011). Van den Brink (2009) describes 'recruiting the best scholars' as the core business of universities. As the scientific labour market is increasingly global (Regets, 2007), competition for excellent academic staff is growing (Levin et al., 2006; Mohrman et al., 2008). The reputation of universities plays an important role in attracting excellent researchers (Van Vught, 2008), as does universities' HRM (Thunnissen et al., 2010), and the prevalent career system (Huisman et al., 2002; Van Balen & Van den Besselaar, 2007). The latter lacks transparency, as Van den Brink (2009) has shown, leading among others to an underrepresentation of women in higher positions. If a transparent and formalised method does not exist, what then determines whether excellent talents are preserved for a successful academic career, and do not 'leave the system'?

Empirical studies about academic careers are hardly available. This paper is an explorative and qualitative study of the factors influencing talents to stay in academia. As universities want to select and preserve the best scholars, we focus on careers of high potentials only. Through semi-open interviews, we explore possible relevant factors such as differences in social background (cultural capital), in networks (social capital), in contextual factors (such as the labour market) and in academic performance (intellectual capital).

6.2 Research questions

According to Baruch and Hall (2004) the academic career system has unique features, which have made it different from the conventional hierarchical, bureaucratic model of careers. Earlier attempts have been made to describe careers in academia, such as Frost and Taylor (1996), but this was very personal and introspective, with the authors reflecting over their own careers (and thus was past- rather than future-oriented). Research in career development usually concentrates on socio-cognitive factors (De Pater, 2005; Lent et al., 1994) such as the interaction between

1 This chapter has been published as Van Balen, B., Van Arensbergen, P., Van der Weijden, I., & Van den Besselaar, P. (2012). Determinants of success in academic careers. Higher Education Policy, 25, 313-334.

self-efficacy, expectations and career position. Publications on academic career development are mainly restricted to describing potential obstacles for Ph.D. graduates and postdocs entering an academic career or obtaining tenure (Van Balen & Van den Besselaar, 2007), and are less focused on the development of the entire career (Baruch & Hall, 2004).

In a comparison with the academic labour markets of France, Germany and the USA, Musselin (2010) shows that career dynamics differ between these countries. This divergence is mainly caused by the nation-specific 'university configuration'. The three countries differ in terms of the degree of autonomy of the academic profession, the role and frequency of the hiring process, selection principles and incentive mechanisms. For example, Germany is characterised by a strongly hierarchical model and a strong dependence on the external market: to obtain a higher position, one needs to apply to a university in another 'Bundesland'.[2] In contrast, within the USA and to a lesser extent also in France, academics can have a career within the same university. Another example is the procedure of getting tenure. In the US, this is much more formalised than in the other countries. Our study is about career dynamics in the Netherlands. The Dutch case is interesting, as the Netherlands has one of the better performing HE systems, with high publication and citation scores, and a high position in university rankings (THE, 2012).

In this paper we focus on the whole career. Our research question is: Why do some talented researchers have a continued academic career, whereas others do not? More specifically, we will address the following issues:

- Do the scholars who stay report more cultural capital than the leavers, such as higher educated parents and better performance in (pre-) university education?
- Do the talents who stay report a different private situation, especially with respect to childcare?
- Do the stayers report more social capital, such as a better network, more support (mentoring, networking), and access to job and promotion opportunities?
- Do the stayers report more support from the HRM and career system in their university than the leavers?
- Were the labour market conditions better for the researchers who continued their career in university?
- Do the stayers have a higher performance than the leavers in crucial career phases?

6.3 Data and methods

This study is based on semi-structured interviews with 42 researchers. The interviews provided us with various types of information. First, we asked them about the relevance of various factors put forward in literature on careers, and that are mentioned in the research questions formulated above. Much of this literature is about countries other than the Netherlands. This study explores whether similar or different mechanisms work in the Dutch HE career system. Second we wanted to be informed about other relevant factors that the researchers experienced themselves to be important for their careers, leading to a description of their career and major events that affected

2 Germany consists of states, in German Bundesland.

their career. In order to analyse the interview material, we organised the data in a timeline with critical career events, such as obtaining Ph.D., receiving important research grants, becoming tenured, being promoted to professor, leaving the university.

The careers of these scholars may be influenced by many different factors, not controlled for in this study. Therefore we decided to use a (case study) strategy of selecting cases with enough variety but also enough similarity. Cases were therefore selected from a variety of disciplines, universities and regions. Within this approach, we selected pairs of a talent who stayed and a talent who left. The pairing is based on similarity in research field and in generation, and may minimalize the uncontrolled effects. This enables us to compare the group of stayers with the leavers, but also between and within the pairs.

In order to create the pairs, we asked HRM departments of universities for excellent 'glad that we could keep them' talents, without indicating their career phase. From the responses, we composed a group of 21 scholars with a thriving university career. In practice these are researchers that were full professors. The stayers were selected in a way to create a variety of discipline, region and gender. In order to find a comparable talent who left, we asked the interviewed stayers to name someone who started an academic career in the same period as they did and who was considered to be very talented, but at some point moved to a non-academic career. Not all stayers could name a leaver, and we could not trace all the people who were named. So we completed the leavers group by asking professors with long-term experience in the same field to provide us with the names of highly talented leavers. A consequence of this recruiting method is that we could not make 21 perfectly matched pairs. Table 1 gives the details.[3]

Apart from the interviews, we collected labour market and performance data. First, data about the academic labour market were obtained from the Netherlands Association of Universities (VSNU).[4] Labour market fluctuations are defined in terms of changes in the number of academic positions within the universities in the period the talents in the research group made their career steps. Due to data availability, this was done on the fairly aggregate level of the main disciplines. In periods the number of relevant positions (e.g., associate professor in the social sciences) has increased, vacancies have been available. In periods of decrease, this was much less the case, taking into account the relatively low mobility in the academic labour market.

3 This sample is not representative for all research careers, as we focus here on the top talents only.
4 http://www.vsnu.nl/Universiteiten/Feiten-Cijfers/Personeel.htm.

Table 1 The sample distribution according to gender, discipline and region

	Talents who stayed									Talents who left								
Region	West		North		East		South		Total	West		North		East		South		Total
	M	F	M	F	M	F	M	F		M	F	M	F	M	F	M	F	
Humanities	2	2							4	1	3					1		5
Natural Sciences	2	1	1		1		2		7	2	2			2		1		7
Social Sciences	1		1	1				1	4	3			2	1			1	7
Technical Sciences	1	1			1				3									0
Medical Sciences	2	1							3	1	1							2
Total	8	5	2	1	2	0	2	1	21	7	6	0	2	3	0	2	1	21

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Second, we retrieved all the scholars' publications from the Web of Science (WoS) and from Publish or Perish (PoP), in order to determine their academic performance (publications, citations, H-index) in the various phases of their careers. In this way, academic performance of successful and unsuccessful interviewees can be compared. The WoS and PoP data were cleaned: the authors as well as the publications were (manually) disambiguated.

6.4 The case

Academic behaviour and career dynamics differ between countries, and this relates to differences between the systems of HE (Musselin, 2010). We therefore briefly describe how the Netherlands' system works.

6.4.1 The Dutch system of HE

In the Netherlands, distinction is made between research universities and universities of applied sciences. Research universities offer degree programmes on three levels: bachelor, master and Ph.D. and have the 'lus promovendi', the mandate to award doctorates. All Dutch research universities want a place at the top of university rankings, as can be illustrated by their mission statements.[5] Universities of applied sciences mainly offer bachelor programmes aimed at professional education. Our study focuses at the 14 research universities of the Netherlands, with 40,000 staff and 200,000 students. Ph.D. students are employed by the university on a temporary (4-year) contract to do research and some teaching.[6] Ph.D. students also have to follow courses for their own training and education. Over the last 20 years the number of Ph.D. students successfully defending their thesis in the Netherlands has doubled - from 1898 to 3,736 per academic year (CBS, 2011).

5 http://cf.bc.uva.nl/download/instellingsplan_2007-2010.pdf; http://www.uu.nl/university/utrecht/nl/profielenmissie/hoofdlijnenstrategie/Pages/default.asp; http://www.tue.nl/universiteit/over-de-universiteit/profiel-en-missie.

6 Next to these Dutch universities have the category 'external doctoral students', Ph.D. students not employed by the University. They generally work in other (public) research organisations, in educational jobs or in companies.

Most Ph.D. students leave the university upon graduation, but many aim at an academic career.[7] Therefore they apply for a post-doctoral position (Sonneveld et al., 2010), which is considered as preparation for their first 'real' academic position: assistant professor. The next step could be an associate professor position, succeeded by the final step of becoming a full professor.

Until recently, the numbers of positions at various levels were fixed, and the higher the level, the fewer the positions available. Promotion was dependent on vacancies - not on individual performance. Over the last decade, the career system has become less rigid, and universities are implementing a variety of career systems that are increasingly allowing for promotion trajectories based on individual performance for example tenure track systems (Thunnissen et al., 2010; Van Balen & Van den Besselaar, 2007), leading to a fairly heterogeneous career system.

6.4.2 Academic labour market issues

A decade ago the expectation was that Dutch universities would be facing tremendous shortages of eligible candidates for higher academic positions in the near future (Van Vucht Tijssen, 2000). Similarly, the Council for Science and Technology Policy (AWT, 2005) emphasised that more opportunities were needed for research talents to develop their capacities. Others, however, feared an oversupply, leading to a growing gap between the ambitions of young researchers and their chances for an academic career (Hoffius & Surachno, 2006; Keijzer & Gordijn, 2000). In an earlier study we showed that there was neither an under or an oversupply. The real problem is the hierarchical nature of the academic labour force, where it can take a long time for talented young researchers to reach a position as independent researcher: professor (Van Balen & Van den Besselaar, 2007). In this follow-up project, we therefore study the careers of talented researchers, and will try to identify the decisive factors influencing success in academic careers.

6.4.3 Criteria for talent?

Although talent is often defined as a natural ability or capacity[8], in an academic context it generally refers to the academic quality of someone's past achievements (Thunnissen et al., 2010; Van Arensbergen & Van den Besselaar, 2012), as emerged by interviewing leading professors in different fields. In their view talented students and researchers produce a very good master's thesis and an excellent doctoral dissertation, and have high grades. Also excellent teaching skills are sometimes mentioned. 'The "talented" students are eager, focused and deeply interested in the discipline, they have passion and drive'. This suggests that criteria for talent relate to research performance, teaching skills and motivation. However, the professors interviewed remained rather vague about the exact criteria used to decide on talent and excellence. They feel that one does not need criteria, as talents will be noticed anyway. This is in sharp contrast with for example, the situation in the US, where tenure depends on explicitly formulated criteria with respect to quality and quantity of research output.[9]

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7 Ph.D. students are employed by the university, which in practice creates expectations that an academic career is the normal road.

8 http://oxforddictionaries.com/definition/talent; http://www.vandale.nl/vandale/zoekService.do?selectedDictionary=nn&selectedDictionaryName=Nederlands&searchQuery=talent; http://oxforddictionaries.com/definition/talent, last accessed 14 September 2011.

9 For example, http://www.american.edu/provost/academicaffairs/upload/Sociology-Tenure-and-Promotion-Guidelines-FINAL-2-7-2011.pdf.

6.5 Findings

When we look at the duration of the various career steps, there are huge differences within and between the pairs. Sometimes it takes only a few years to take the next career step, sometimes many. Table 2 shows the lengths of the phases of several pairs as an illustration. The career data do not indicate that it is necessary to take short career steps to achieve a successful academic career or the other way around. For example, the stayer in pair 7 had a postdoc trajectory of 12 years, but became a full professor in the end, 19 years after obtaining her Ph.D.

Table 2 Duration of career steps in years

Talents	Pair 1		Pair 2		Pair 3		Pair 4		Pair 5		Pair 6		Pair 7		Pair 8	
	S1	L1	S2	L2	S3	L3	S4	L4	S5	L5	S6	L6	S7	L7	S8	L8
Ph.D. trajectory	5	4	4	5	5	5	4	3	2	4	5	4	5	6	7	13
Postdoc trajectory	2	8	4	1	3	4	1	-	1	1	6	8	12	5	-	-
Assistant professor	7	1	5	7	7	-	7	11	11	-	4	-	3		14	18
Associate professor	2	-	2	-			3		3		5		4		5	-

S= Talent who stayed; L= Talent who left.

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6.5.1 Individual factors

Cultural capital: Educational level of parents

Family background, that is parents having undergone HE, used to be an important factor determining the chances for an academic career (Bourdieu, 1988; Van Heek et al., 1958). Among those who influence students' educational expectations, parents play an early and critical role. Wells et al. (2011) present a literature review indicating that the social origin of the family sets the financial, social and cultural context for education. Parents' educational attainment influences their children's educational expectations. Wells et al. (2011) note that the level of education the parents attained indirectly defines the value of HE for their children, but this effect appears to have decreased recently. This last development seems to be confirmed by our study. The interviews showed that the majority of the interviewees' parents did not have an academic degree. This is valid for both groups, the stayers and the leavers. Eight of the interviewees in both groups reported that one parent had undergone HE and 13 indicated that neither parent had. Within the pairs, almost all possible situations arise, except for one: both talents have an academic family background. These findings suggest that the level of education of the parents is not a main factor, a hypothesis that needs further testing.

Cultural capital: School performance

Did the successful researchers have better school performances? Most of the interviewees reported high grades during secondary education, which can be seen for the S group as well as the L group (Table 3).

Table 3 Comparing school success

	S high grades, L not	Both high grades	Both no high grades	L high grades, S not
Secondary education	3	8	2	4
Master's degree	4	1	10	2
Ph.D.	2	0	7	3

S= Talent who stayed; L= Talent who left.

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High grades during secondary education motivated several talents to aim for university study. Others did not perform very well during secondary education, and only became motivated later on. The grades did not differentiate between stayers and leavers. Thirteen interviewees of the first group reported high grades during secondary education against 14 of the second group. High grades[10] during secondary education also do not distinguish between the groups at the pair level. Actually, in slightly more pairs, the leavers had higher grades than the stayers, than the other way around, but the differences are small.

During the master's degree, as well as the Ph.D. study period, high grades were less common. For most of the interviewees other stimuli were more important. They mention, for example, interesting research subject, cooperation with their supervisor, extra tasks they performed and participation on student boards. Comparing the pairs shows that at the master's level, the pairs where the stayers scored better were more abundant than those where the leavers scored better. However, at the Ph.D. level, this pattern reversed again. In concluding, educational performance does not seem to differentiate between the two groups of talents. We should emphasise here that the sample is an 'elite' selection. The group that stayed and the group that left were both nominated as 'talent'. All belong to the group of excellent talent. The findings result in the hypothesis that within this group, cultural capital does not seem to influence success in obtaining higher academic positions.

Family situation

Several studies have shown that men and women tend to inhabit different sex-based family situations, which may affect development of their academic careers. These include lower marriage rates of women in academe (Probert, 2005), lower geographic and job mobility linked to marriage (Rosenfeld & Jones, 1987), and more significant childcare responsibilities (Hamovitch & Morgenstern, 1977). Furthermore, women who have reached the top in academia seem to be remarkably often childless. Despite improvements in the academic gender balance in recent decades, women are still more likely than men to occupy temporary and part-time positions on a lower level in the academic hierarchy (Baker, 2008). Combining children and an academic career was not easy, as was already noticed in the Netherlands several years ago (Beekes, 1991; Van Doorne-Huiskes, 1979).

10 High grades are defined as 'cum laude' or a comparable level.

More recently, Wolfinger et al. (2008) explored the effects of gender and family formation on academic employment subsequent to receiving a Ph.D. They showed that having a family and children lowers the chance of obtaining tenure-track positions. Single women without young children fare better than their male counterparts on the market for assistant professorship. However, according to Wolfinger et al., family formation cannot account for women's difficulties at later career stages — namely tenure and promotion to full professor. Not all interviewees provided information about their personal situation. Those who did reported that support from a partner is necessary to develop a successful academic career.

> *The partner of S4 did not aspire to have an academic career, although she obtained her PhD. She looked for a job that enabled her to be at home more often and take care of the children. That way she made his career possible.*

The data in Table 4 indicate that the talents who stayed felt more often supported by their partner, than the talents who left. Partners who choose to put all their effort and time in their own career and corresponding residence and working hours, do not stimulate the academic career of the academic talents. As there is no great difference in the number of stayers and leavers having children, this seems to have less influence on the academic career chances. However, the relatively low number of women compared to men who stayed and had children is in line with the observation of Ann Mason (2008) that 'Babies do Matter in Science'. Our findings suggest that this is mainly the case for women.

Table 4 Family conditions

	Talents who stayed			Talents who left		
	Male	**Female**	**All**	**Male**	**Female**	**All**
Have children	10	3	13	8	8	16
Supported by partner	8	5	13	2	1	3
	S yes, L no		**Both yes**	**Both no**		**L yes, S no**
Have children	1		10	0		2
Supported by partner	9		3	1		0

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6.5.2 Organisational factors

Social capital: Mentoring

Sponsorship and mentorship are a 'nurturing process in which a more skilled or more experienced person, serving as a role model, teaches, sponsors, encourages (y) a less skilled or less experienced person for the purpose of promoting the latter's professional and/or personal development' (Anderson & Shannon, 1988, 40). Ehrich et al. (2004) conducted a meta-review of more than 300 research-based articles on mentoring. Their analysis showed that mentoring offers, despite some shortcomings, many far-reaching benefits for mentees as well as for mentors, mentees experience personal support and opportunities for career development. Furthermore

many academic researchers learn from their mentoring relationships how to collaborate and how to interpret social dynamics of collaboration (Mayer et al., 2008). Mentorship can also be important for (pre-doctoral and early-career) research productivity, self-efficacy, grants, and level of promotion and professional network of young researchers (Cameron & Blackburn, 1981; Gardiner et al., 2007; Janasz & Sullivan, 2004; Paglis et al., 2006). A study on the mentoring of junior female academics shows that academics who received mentoring were more likely to stay at the university.

In line with the latter findings, all our interviewees indicated that the support of a mentor, coach or supervisor is very important for an academic career, for some even crucial. 'You will not survive without the support of a mentor'. This can also be reported in a negative sense: some of the interviewees reported that the absence of a coach or supervisor influenced their departure. All four interviewees who had not had a mentor, or even indicated that they were deprived of a mentor, left the university.

S20 met several people in her career who were at some time very stimulating. During secondary education the teachers in Dutch literature were her role models. Literature offered a perspective on the world she could not find at home. During her study at university she was inspired by a teacher in French film studies, later on her PhD supervisor gave her a lot of confidence. When she was a starting scholar she was supported by two female professors, who stimulated her to apply for a full professorship.

Table 5 Influence of mentors according to the interviewees

	Talents who stayed		Talents who left	
Felt stimulated by a mentor or sponsor	17		15	
Career development advices	14		5	
Did not have a mentor	0		4	
	S did, L didn't	**Both did**	**Both didn't**	**L did, S didn't**
Felt stimulated by a mentor or sponsor	5	8	0	4
Career development advices	9	3	4	1

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However, we have to keep in mind that the answers on this question were retrospective views of the interviewees on their career. This view can be influenced by the tendency to attribute 'the failure' of an interrupted academic career to an external cause (Bem, 1972). When comparing the influence of mentors, differences do occur (Table 5 — lower half). This does not hold for the stimulating role of the mentor, but it does for the career advice role. There, in more than 50% of the pairs the talent who stayed owes a piece of crucial career development advice to a mentor, whereas the talent who left did not. And in only a few pairs it worked in the opposite way. These data are in line with findings by other researchers: Mentoring of young scholars is important; giving the right guidance and motivation at the right moment by teaching talented Ph.D. students and postdocs the who, what and how of academia may help (Baruch & Hall, 2004;

Scaffidi & Berman, 2011). But mentoring is certainly not the only factor that counts; also the institutionalised career system matters, which is discussed below.

Social capital: Networking

Networking is in many studies described as equally important for an academic career as mentoring or sponsoring (e.g. Shin & Cummings, 2010; Zuckerman, 1991;). Network building very often starts with the mentor or supervisor. The person indicated as mentor was not always, but very often, the same as the Ph.D. supervisor of the talent. The findings from the interviews that network building is important for a successful academic career are in line with earlier research (Burt, 1997, 1998; De Grande et al., 2010).

According to Burt (1997), social capital or networks are crucial for a career. A mentor or sponsor is particular necessary for academics not having social capital themselves. As we showed above, the majority of the talents in our study had no background in academia when starting their academic career. This explains why many of the interviewees refer to the support of a mentor or sponsor.

Table 6 Influence of networks

	Talents who stayed		Talents who left	
Owed a job or crucial contact to mentor/sponsor	17		9	
	S yes, L no	Both yes	Both no	L yes, S no
Owed a job or crucial contact to mentor/sponsor	9	5	0	3

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Burt (1998) also argues that professionals starting out in their career should aim at building their social networks within an organisation. On the basis of his research Burt advises 'freshmen' to start a career by borrowing the networks of a mentor or sponsor, but advises talents who are advancing to build their own network with a central position for themselves. This is in line with our findings. We indeed found that successful talents more frequently report that they acquired important relations or job opportunities through their mentor than the leaving talents did - as Table 6 shows.

University characteristics: Career development system

Among the factors spontaneously indicated by the interviewees as crucial for their career are the 'career system' and the 'career policies' of the universities. They hold the opinion that the Dutch career system is inflexible and limiting the possibilities for talents. Tenured positions only become vacant when someone else is leaving and this is (with the exception of retirement) not predictable. Universities are reluctant to give the talents a clear perspective. Several Dutch publications (Broersen, 2003; Hoffius & Surachno, 2006) indicate that talents often have to hop from one temporary job to another, awaiting their chance of tenure. Not everyone is able to afford this, since it is difficult to buy a house and support a family with this insecure financial position.

L2 worked for 4 years on a temporary basis, with in total 23 contracts for one university. After some more temporary contracts at another university and two pregnancies, she came to an agreement with the Department on the path to a tenured position. When the end of the temporary contract came, this agreement turned out to be worthless. The Department had financial problems and could not afford to tenure her.

The system does not have enough flexibility to promote and keep those people who have demonstrated their quality. Consequently professors try to keep their talents with vague promises, which they are not able to uphold. The lack of flexibility did turn out to be unfortunate for some of the talents. They reported, for example, that the department or the university was not able or willing to adjust the career rules to people with caring duties. Others, however, mentioned that there were some individual exceptions possible. The rate of flexibility, as reported by the interviewees, depends partly on the faculty and partly on the persuasiveness and effort of individual professors.

L12 agreed with the dean of his Department on the criteria for promotion to associate professor. He should have a number of international publications within three years. After these three years however the rules were changed, he then could get his promotion when he was accepted as a member for a research school. At the moment he met this requirement a new one was added. That was the moment L12 decided to continue his career elsewhere.

Table 7 Career development system[a]

	Talents who stayed		Talents who left	
Problem with career system	5		11	
Problem with HRM practice in the department/university	8		12	
No problems concerning career development	12		4	
	S did, L didn't	**Both did**	**Both didn't**	**L did, S didn't**
No problems concerning career development	5	3	9	0
Problem with career system	2	3	7	5
Problem with HRM practice in the department/university	2	6	3	6

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a The interviewees may have experienced problems with the system and with the HRM practice, so these categories do not exclude each other.

The interview reports often paint a portrait of a supervising professor who started optimistically making plans and coaching a promising researcher. However, when leaving the faculty or his or her managerial position, the plans and promises turned out to be worthless. Several interviewed talents who left, but also a few talents who stayed, felt cheated by their university. The career plans made with a supervisor could not be effectuated and rules and standards were changed during the period the talents were trying to meet them. Interestingly, financial issues were not at stake for the talents. None left university for a better salary. Consistency and perspective, that is

knowing that there would still be a position for them in the university in the near future was far more important (see also Thunnissen et al., 2010). In summarising, the talents experienced two kinds of problems in regard to career development:

- Problems related to the career system as such: no tenured positions available at the crucial moment, postdocs hoping and waiting for vacancies.
- Problems related to the HRM practice in the department: unkept promises, no flexibility, no clear career perspectives, no facilities for talents with caring duties (Table 7).

Obviously, talents who left experienced more problems related to academic career developments. These problems concern equally the career system and the HRM practice in the department. These organisational factors indicate what type of talent (HRM) policies could be implemented by universities. We will return to this in the concluding section.

6.5.3 Contextual factors: Labour market fluctuations

Some of the talents in this study were born before 1960, and their career suffered from the strong growth of universities in the Netherlands in the 1970s. In the seventies, universities had appointed many staff members to meet the strong increasing student inflow. In the years that followed, these relatively young staff members remained in their tenured positions and no vacancies were available for new talents. Furthermore universities faced severe financial cut-backs, especially in the 1980s. Consequently, for the generation of talents that started their career in the eighties, an academic career was very improbable.

In order to investigate whether labour market fluctuations do play a role in the careers of the talents under study, we used data on the size of the labour force of the universities. For every discipline we obtained the annual change of assistant professors, associate professors and full professor. In some periods the number of staff in a discipline increases. Labour market conditions are more favourable than in periods the number of positions is stable, or in phases with a decline. We distinguished three labour market situations, a growing, a stable and a shrinking labour market, and we related these to the crucial events[11] in the career of the talents.

Data about the labour market fluctuations in the disciplines were available starting from 1990. For some of the pairs we could therefore not analyse the labour market situation at their crucial career events, and the analysis is therefore limited to eight pairs (Table 8). More talents who left had their crucial career events during a shrinking labour market, but the differences are small.

11 That is first tenured position, promotion and departure.

Table 8 Labour market fluctuations[a]

Crucial career phase in a	Talents who stayed		Talents who left	
Growing labour market*	3		3	
Stable labour market	4		1	
Shrinking labour market	1		4	
	S did, L didn't	Both did	Both didn't	L did, S didn't
Growing labour market*	2	1	3	2
Stable labour market	3	1	4	
Shrinking labour market		1	4	3

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a Discipline specific

So far we described several factors that may account for the different career paths of the academic talents. These are factors based on the interviews. Now we will look at their academic performance: are the scholars who stayed at the university simply better than the ones who left? From the university perspective: are universities succeeding in preserving the best academics?

6.5.4 Academic performance

In order to belong to the top of the academic world, universities try to attract and to retain the best scholars. Since the number of available job opportunities and positions decreases the higher they are in ranking, researchers leaving the university is unavoidable. However, for most doctorate holders, this is not a voluntary choice (De Grande et al., 2010; Schwabe, 2011). For universities this is not a problem, as long as the best scholars stay. Academic performance should therefore be decisive for the development of one's academic career. According to Long and McGinnis (1993) historical analyses indicate that quantity of publications is the most important factor predicting rank advancement of academic scientists.

We compared the academic performance at various stages of the careers.[12] This enabled us to compare the publication and citation scores at the moment one left with the scores of his or her staying counterpart at the same moment. This informs us whether academic performance determines careers: do better performing researchers stay, and do less performing researchers leave?

12 For several reasons a straightforward performance match was not possible for all 21 pairs, for example, when the person that left did so in an early career phase when academic performance is still modest. For one third of the pairs, a performance comparison turned out to be possible.

Table 9 Comparing performance of eight pairs

	Publications	Citations
Performance when obtaining Ph.D.		
Pairs with S perform higher than L	4	5
Pairs with S perform equal to L	2	2
Pairs with S perform lower than L	2	1
Performance at start tenure (track)		
Pairs with S perform higher than L	4	4
Pairs with S perform equal to L	4	0
Pairs with S perform lower than L	0	4
Performance after next promotion/leave		
Pairs with S perform higher than L	2	3
Pairs with S perform equal to L	2	0
Pairs with S perform lower than L	4	5

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S= Talent who stayed; L= Talent who left

In Table 9 we show the performance indicators for three crucial phases in the careers. We include in this analysis eight pairs, four from the sciences, one from the social sciences and three from the humanities. For the first four, we used the WoS for measuring the number of publications and citations, and for the last four we used PoP.[13] The pairs are compared at three moments in their careers: (a) the moment of obtaining their Ph.D. degree; (b) the moment where the researcher obtained a tenured or tenure track position. Of course, more important career events may have taken place, and in that case, we have selected events that are almost similarly positioned in the life cycle: a similar number of years after the Ph.D.; (c) the moment when one of the two leaves, and this compared with a promotion in the career of the other that takes place at about the same moment in terms of 'career age'. For every of the three career events, we distinguish three groups: a group where the stayer performs better than the leaver (S>L); a group where both perform about equal (S¼L); and a group where the leaver performs better than the stayer (SoL). The table shows the size of each of the groups for both performance indicators: (publications and citations) we classified the pairs in three groups. Table 9 shows the resulting distribution over the six categories.

a. At the time of obtaining their Ph.D., the future stayers (S) who outperform the future leavers (L) are the largest group, followed by the equal pairs and the leavers outperforming the stayers.
b. At the mid-career event, this still holds for publications, but not any more for citations: the leavers are as often better than the stayers as the other way around.

13 In both cases, we had to clean the data in order to have the right persons included. Especially in PoP, we unified the publications that appeared in the list in different versions.

c. In the final stage, the picture has changed more radically, and the pairs where leavers outperform stayers have become the majority for publications as well as citations.

These results suggest that there is no systematic relationship between the career success and the commonly used indicators for scholarly performance. Within the group of talented scholars, academic performance does not seem to determine success in a university career.[14]

6.5.5 Combining factors

So far we have analysed the data per factor individually. However, interviewees often mention a combination of factors that have affected their career. Moreover the interviews suggest that success is the effect of a number of cascading factors and accumulating advantages, whereas accumulating disadvantages determine whether a talented researcher leaves the university. To test this, we compared the stayers and leavers not in terms of scores on specific factors, but in terms of the number of positive and negative factors they reported. To illustrate this we counted the factors that, in the view of the interviewees, had implications for their academic career. These factors are: (i) support by partner; (ii) a stimulating mentor; (iii) career development advices; (iv) no problems experienced by the academic career system; (v) positive labour market at the crucial career phases.

Table 10 Pairs and combined effects

S more positive factors than *L*	12
Equal number of positive factors	4
L more positive factors than *S*	1

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Table 10 indeed shows that in 12 out of 17 pairs, the talented scholar that continued an academic career accumulated more positive factors than the one that left. Only in one pair is it the opposite. In four pairs, both talents reported an equal number of positive factors. Comparing the two groups (in Table 11) supports this finding.

14 In a study comparing successful grant applicants with good rejected applicants, we also found that past performance did not differ between the two groups (Van den Besselaar & Leydesdorff, 2009).

Table 11 Combined effects

Balance	Talents who stayed	Talents who left
5 factors positive	2	0
4 factors positive	5	2
3 factors positive	8	2
2 factor positive	6	8
1 factor positive	0	7
0 factors positive	0	2

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6.6 Conclusions and discussion

Human resources are recognised as being the key to the creation, commercialisation and diffusion of innovation (Auriol et al., 2010). In this respect, academic scholars are the top of educational hierarchy and specially trained to conduct research and teaching, representing a particularly specialised group in the 'human capital stock' of a society (Schwabe, 2011). The competition for top positions in university rankings has put stronger emphasis on the recruitment of excellent scholars. An important question in HE policy is whether excellent talents are preserved for an academic career, and do not 'leave the system'. In this study we explored which factors influence a successful academic career in the Dutch situation.

The literature analysis and the interviews were performed to see to what extent the factors generally said to influence career development were of importance for the talented scholars and to identify other factors that were important from the viewpoint of the talents themselves. A comparison of researchers who continued and discontinued an academic career seems to confirm the importance of some of the factors (e.g. social capital), whereas others did not (cultural and intellectual capital) differentiate between staying and leaving.

Cultural capital was not found to influence the career paths of stayers and leavers, as no real differences were revealed between stayers and leavers in their educational background and of their parents. Furthermore, support of a partner is necessary in the development of an academic career, while having children was not found to be influential. However, only 50% of the female stayers have children compared to 100% of the males. This suggests that having children does matter for successful female scholars.

The interviews also indicate the importance of social capital. The support of a mentor is important for a successful academic career. In more than half of the pairs the talented stayers owe a piece of crucial career development advice to a mentor whereas the leaver did not. Mentors are also important with regard to access into the networks that they provide, as we found that in more than half of the pairs the talented stayers owe a job or crucial contact to a mentor whereas the leavers did not. Talented scholars reported problems with career policy [organisational factor] as developed on the macro level — within the Netherlands — and with the career policy and opportunities within their own department. In one third of the pairs, the leavers indicate prob-

lems with the career system whereas the stayers did not. These results suggest that the career system does influence career success of talented scholars.

By linking the crucial events in the career of the talented scholars to the labour market conditions [contextual factor] in that period of time, we have shown that talented researchers left academia more often during a shrinking labour market. However, it should be noted that differences are small and because of limited data concerning labour market fluctuations only a proportion of the pairs could be compared. We found no systematic relationship between the career success and the academic performance of highly talented scholars, measured as the number of publications and citations. In the final career phase the leavers even seemed to outperform the stayers, showing that high productive researchers are not always preserved by the university system.

6.6.1 Accumulation of (dis)advantages

In conclusion, our exploration does not reveal one deciding factor that determines which talents are preserved for the university. We actually found a wide variety of combinations. Our results suggest that academic careers of talented researchers are stimulated (for those that stayed) or inhibited (for those that left) by an accumulation of advantages or disadvantages, including, according to several of the interviewees, coincidences. Future research on a larger and representative sample of pairs of talented scholars should further test this hypothesis.

What does our study mean for HE career policy? If accumulation of positive and negative factors more than talent as such is decisive, universities could take a proactive stance towards talent management, and create conditions in which competition based on talent and performance is supported, more than only 'being at the right place at the right moment'. The coincidence factor could be more decisive for the Dutch situation than elsewhere because of the absence of a transparent career system and the lack of criteria for career advancement. Unlike for example, the procedures in major US research universities, early career talents often lack information about the number of articles or books they need to have written in order to get tenure. Above that, appointments are often not based on advice of external scholars assessing the work of the candidates (Van den Brink, 2009). Our findings suggest that university policy should aim at clarifying the criteria for career advancement, and at introducing individual performance-based promotion mechanisms. This development has to some extent started with new initiatives, such as mentorship programmes and tenure track systems (Van Balen & Van den Besselaar, 2007). Both could contribute to a consistent, transparent and better 'talent management' approach.

6.7 References

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